

REMARKS

OVERVIEW

Claims 7-10, 13 and 15 are pending in this application. Claims 7, 13 and 15 have been amended. The present response is an earnest effort to place all claims in proper form for immediate reconsideration. Reconsideration and passage to issuance are therefore respectfully requested.

ISSUES UNDER 35 U.S.C. §103

Claims 7-10, 12-13 and 15 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 4,019,168 to Collins in view of U.S. Patent No. 3,457,148 to Waggener and Sato (JP 61-27264).

The Examiner indicates that "Collins discloses, except the chip form of the resistor, the claimed invention at Figs. 4-7 with nichrome resistor 16, tantalum oxide layer 14 and terminals 24" (office action, page 2, numbered paragraph 3). Claims 7, 13 and 15 have been amended. It is respectfully submitted that the claims are distinguishable from the references cited.

Collins is directed towards a thin film resistor, however, in Collins, the resistor is formed from a different process and the resulting resistor has a different structure. For example, claim 7 requires "a single metal thin film resistive layer directly attached to the substrate, the metal thin film layer being non-tantalum." In addition, claim 7 requires "an outer moisture barrier consisting of tantalum pentoxide directly overlying and contacting the metal thin film resistive layer for reducing failures due to electrolytic corrosion under powered moisture conditions; and the outer moisture barrier formed from deposition of tantalum oxide on the metal thin film

resistive layer and not through oxidation of tantalum." In contrast, the resistor of Collins uses a layer of tantalum which for the most part is subsequently oxidized.

One of the structural differences of Collins is that Collins includes metallic tantalum as a part of the resistor where as the Applicant's invention does not. At column 5, lines 59-68 it is taught that "In this connection it should be especially noted that the portions 40 and 42 of tantalum film 14 residing between the conductive pads 22 and 24 and the nickel-chromium film 10, have remained as metallic tantalum. This is a highly significant aspect of the present invention in that by enabling film 14 to remain in its metallic condition at the zones indicated, the advantages of the tantalum interface — i.e. the conductive and diffusion barrier functions previously mentioned — are fully maintained."

Therefore, it is clear that the different methodology of Collins results in a different structure because Collins requires a layer of tantalum followed by oxidation of that layer of tantalum. The present invention does not rely on oxidation of tantalum and the claims make that explicit. Therefore, this rejection should be withdrawn on that basis.

The Examiner previously stated that "the argument that the Collins resistor has tantalum at the ends does not distinguish the claimed invention since Applicant's claim only requires the resistive layer to be non-tantalum and Collins discloses such a resistive layer, where any tantalum is considered part of the terminals as highly conductive" (office action, page 3, numbered paragraph 4). Claim 7 has been amended to clarify that neither the resistive layer nor the termination is tantalum. In particular, claim 7 now explicitly requires "a non-tantalum chip resistor termination." Therefore, Collins is distinguished and this rejection should be withdrawn on that basis. To further clarify, the preamble of claim 7 has been amended to require "a thin film chip resistor resistant to moisture without use of metallic tantalum." It is respectfully

submitted that this addition to the preamble also further distinguishes as it puts the invention in its proper context of providing a tantalum oxide protective layer in a chip resistor without using metallic tantalum. Consistent limitations have also been added to independent claims 13 and 15. Therefore, it is respectfully submitted that Collins is in fact distinguished and these rejections must be withdrawn on that basis. As claims 8-10, and 12 depend from claim 7 it is respectfully submitted that these rejections should be withdrawn as well.

It is also noted that Waggener is also deficient because at best Waggener discloses anodization. Waggener does not disclose depositing tantalum pentoxide. The Examiner indicates that "Waggener at the top of col. 3 discloses that oxides can be sputtered so that sputtering would be obvious to replace the anodizing process in order to control the thickness of the oxide" (office action, page 2, numbered paragraph 3). All that Waggener discloses is that aluminum oxide may, in certain cases, be deposited directly through reactive sputtering. Waggener does not disclose sputtering depositing tantalum oxides. In fact, Waggener is more fairly viewed as teaching away from depositing tantalum oxides because Waggener discloses an anodization process for forming a tantalum oxide from tantalum and makes no suggestion or teaching that a tantalum oxide should be sputter deposited.

To the extent the Examiner relies upon Sato, it is noted that Sato is directed towards a very different type of invention, namely a thermal head. The fact that a thermal head includes heat generating resistors is not enough to make thermal head an analogous art. Clearly, when making a thermal head one has different concerns than making a thin film chip resistor. A thermal head is not a thin film chip resistor.

It is respectfully submitted, therefore, that all claims are in proper form for immediate allowance and reconsideration and passage to issuance are respectfully requested.

No fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



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